REMARKS

I. Preliminary Remarks

The present invention relates generally to immunotherapy methods providing reduced risk of anaphylaxis. In particular, the invention is directed to the preparation of improved compositions of contiguous overlapping peptide fragments (COPs) for selected allergens wherein the fragments are capable of inducing a T cell response in patients who are hypersensitive to the allergen but wherein administration of the compositions of the invention results in lower levels of IgE stimulation activity.

Applicants thank the Examiners for their courtesy during the telephonic interview conducted January 17, 2008 during which differences between the inventive method and the prior art were discussed. Various amendments to the claims were then discussed at the Interview to more precisely claim the subject matter of the invention and to distinguish the methods of invention from those prior art disclosures. In particular, the first step is carried out using computerized methods (see para. [0052]) to identify specific structural formations (alpha helices, beta sheets and cysteine bridges) which are responsible for the three-dimensional structure of antigens which are involved in IgE binding in order that those structural formations may be disrupted by the presentation of overlapping peptide fragments. Such structural analysis of a protein may include crystallization, X-ray diffraction and three dimensional structural prediction. Other amendments are made to specify that the separation sites are "within the sequence of the polypeptide allergens" and that those separation sites are selected to provide "candidate" COPs for screening. In addition a maximum length of 90 is provided for the candidate fragments as taught in para. [0020].

These amendments are supported throughout the specification including at para. [0052] disclosing computerized analysis of the secondary structure of the immunogen by various methods including those of Chou and Fasman and others; at paras. [0096] and [0097] teaching analysis of alpha-helices and beta-sheets and describing the three dimensional structural analysis of the major three-dimensional structural features of Bet v 2 which is a major birch pollen antigen including identification of a seven-stranded antiparallel beta-sheet and a long C-terminal alpha helix; and at para. [0076] directed to

interruption of cysteine disulfide linkages. These amendments do not introduce new matter into the disclosure.

II. Outstanding Rejections

Claims 55-61 stand rejected under 35 U.S.C. §102 (b) as being anticipated by Kammerer et al., Clin. Exper. Allergy 27:1016 (1997).

Claims 55 and 63-65 stand rejected under 35 U.S.C. §103(a) over the combination of Kammerer and Spertini et al., Abstract AAAI presented March 3-8 (2000) J. Allergy Clin. Immunol. 105 (1-pt.2) S278 (C23).

Claims 55 and 61-62 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kammerer in view of Shanti et al., Cell Mil. Life Sci. 61:525-536 (2004).

III. Patentability Arguments

A. The Rejections of Claims 55-61 Under 35 USC §102(b) As Being Anticipated by Kammerer et al. Should Be Withdrawn.

The rejections over Kammerer should be withdrawn because Kammerer does not practice the structural mapping according to the claims wherein the separation points that disrupt the IgE epitopes are chosen by analysis of the secondary structure such as the presence of alpha helices, beta sheets or cysteine disulfide bridges.

Kammerer discloses T-cell epitope mapping but teaches using the whole allergen sequence as a product for desensitization rather than specific regions, since elicitation of T-cell response rather than B-cell is desired to obtain desensitization. Kammerer is not directed to the identification of sites that would disrupt recognition of IgE epitopes by B-cells. Since the T-cell mapping of Kammerer does not teach where to choose the peptide ends it would not result in the method of the invention.

B. The Rejections of Claims 55 and 63-65 Under 35 USC §103(a) As Being Unpatentable Over Kammerer et al. in view of Spertini et al. Should Be Withdrawn.

Spertini which discloses a dot blot immunodot for testing for IgE activity fails to make up for the deficiency of Kammerer in disclosing the steps of conducting a structural

analysis or of selecting one of the separation sites. Accordingly, claims 55 and 63-65 are not only novel over Kammerer for the reasons set out previously but recite methods which would not have been obvious to those of ordinary skill combining the disclosure of Spertini with that of Kammerer.

C. The Rejections of Claims 55 and 61-62 Under 35 USC §103(a) As Being Unpatentable over Kammerer et al. in view of Shanti et al. Should Be Withdrawn.

Shanti also fails to make up for the deficiencies of Kammerer with respect to independent claim 55 and in fact also teaches away from the present invention by teaching that those of ordinary skill would have performed dot blots for showing the presence of IgEs able to bind to COPs. Contrary to the teachings of Shanti, the COPS of the present invention are not intended to bind to serum IgEs of allergic patients under comparable experimental conditions. Thus, the method of the claimed invention provides the selection of peptides which, contrary to Shanti's tryptic peptides, do not bind (or minimally bind) IgEs on dot blots! While KSR removed the requirement for a specific teaching, suggestion or motivation to establish a showing of obviousness, the facts with respect to the negative teachings of Shanti establish that it would not have been "obvious to try" the subject matter of claims 60 and 61. KSR did not eliminate the effects of such negative teaching on obvious analysis.

CONCLUSION

For the foregoing reasons, it is submitted that each of claims 55-65 should now be allowed. Should the Examiner wish to discuss any issues of form or substance, he/she is invited to contacted the undersigned attorney at the number below.

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Respectfully submitted,

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